

Fig. 1

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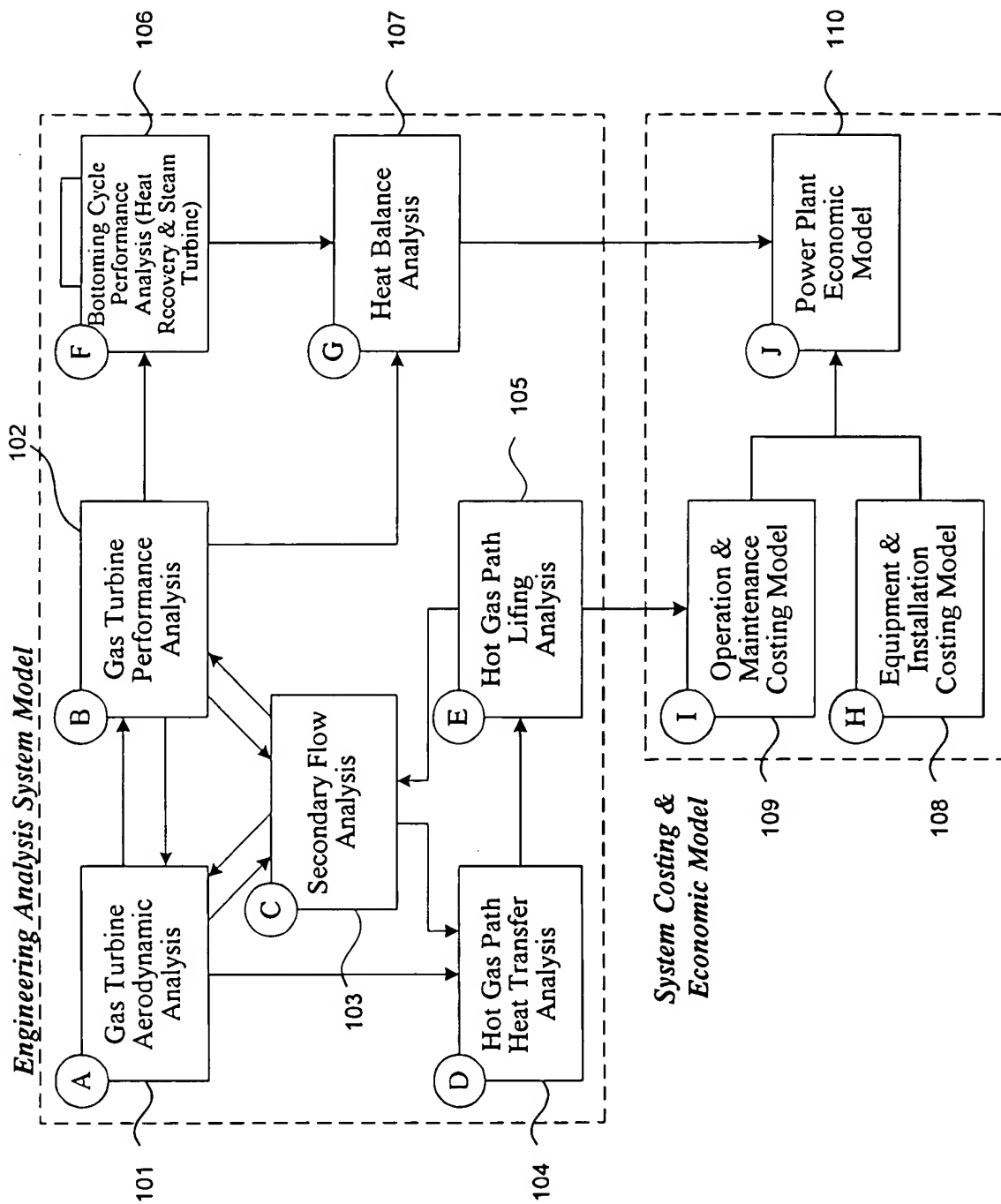


Fig. 2

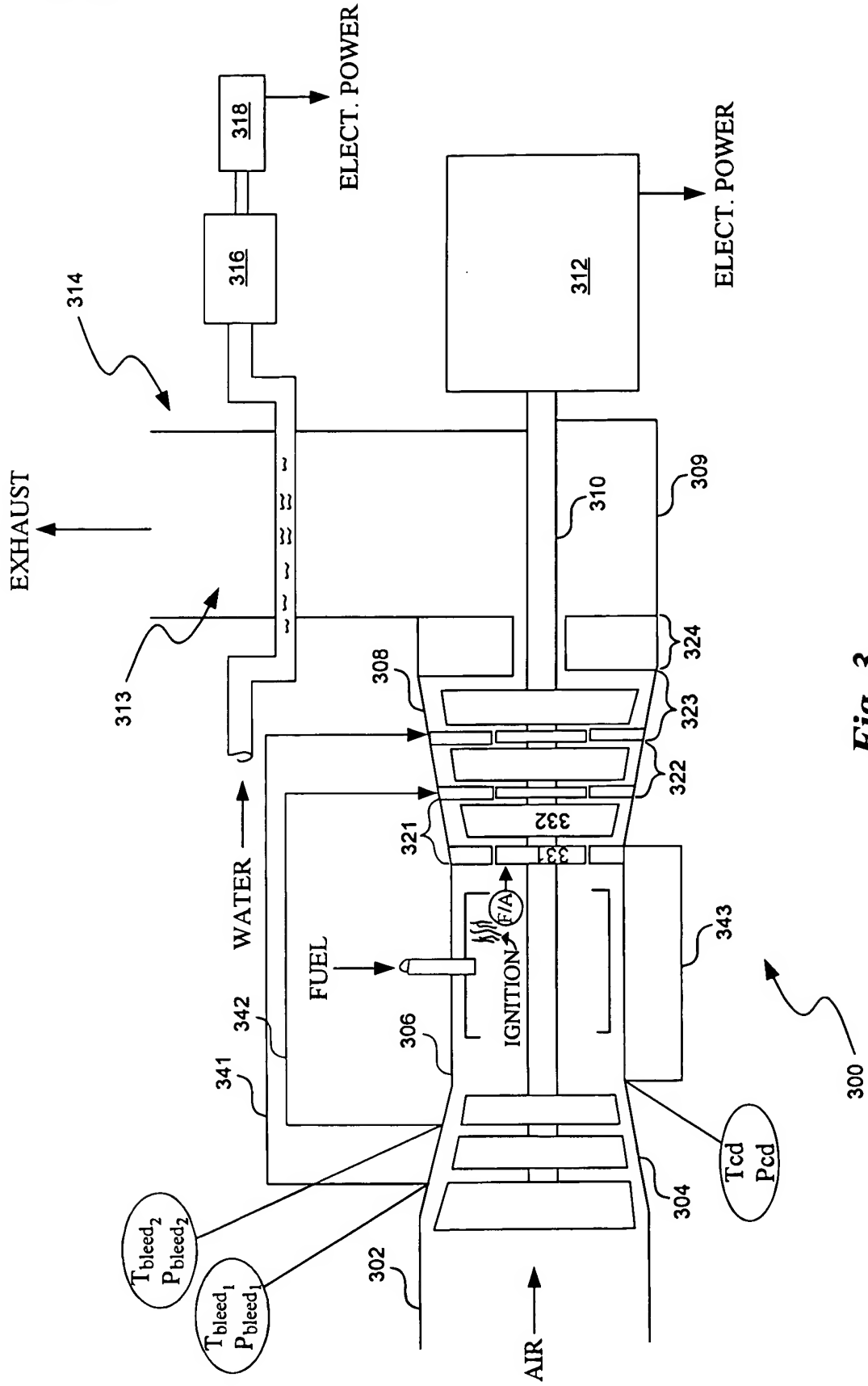
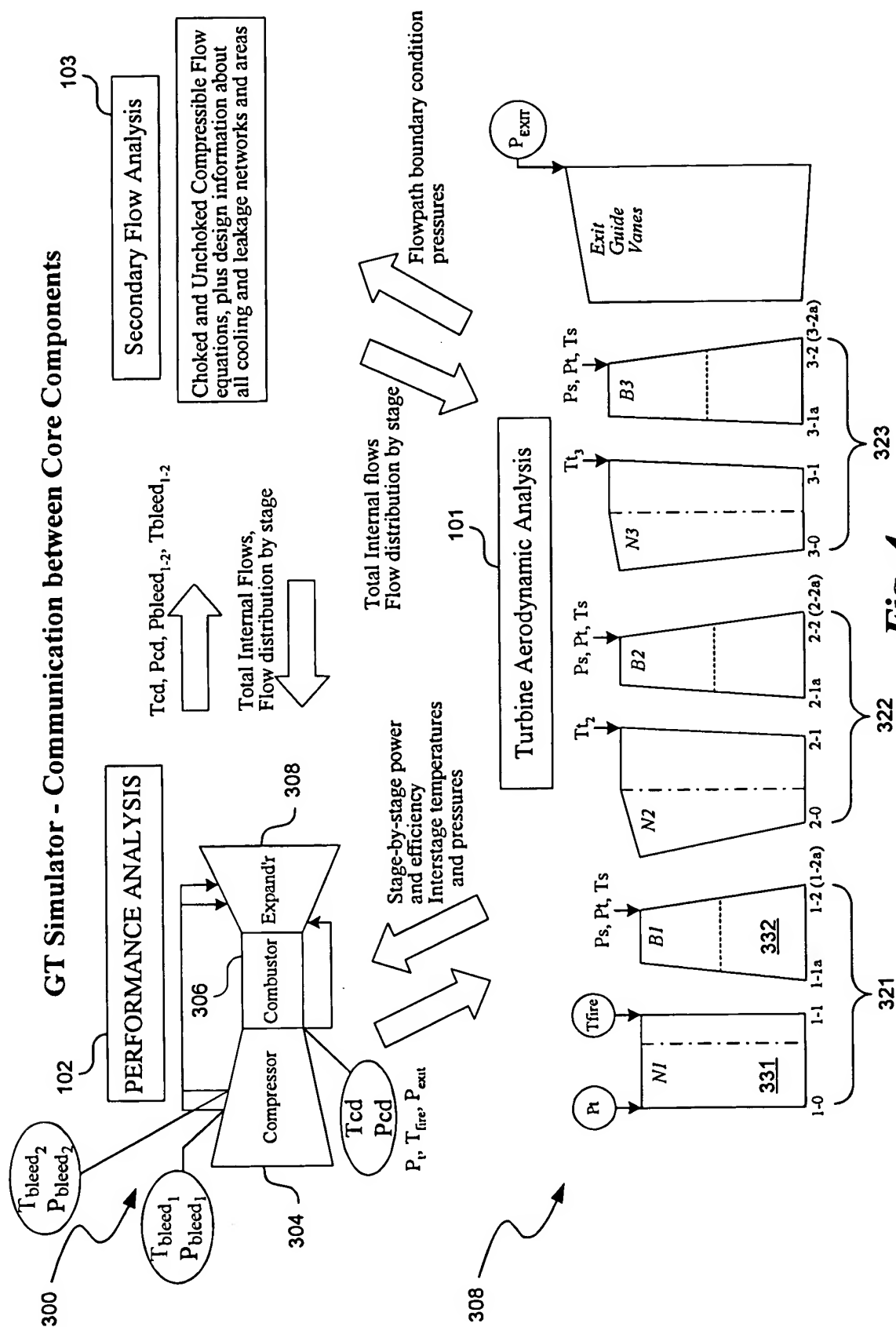


Fig. 3



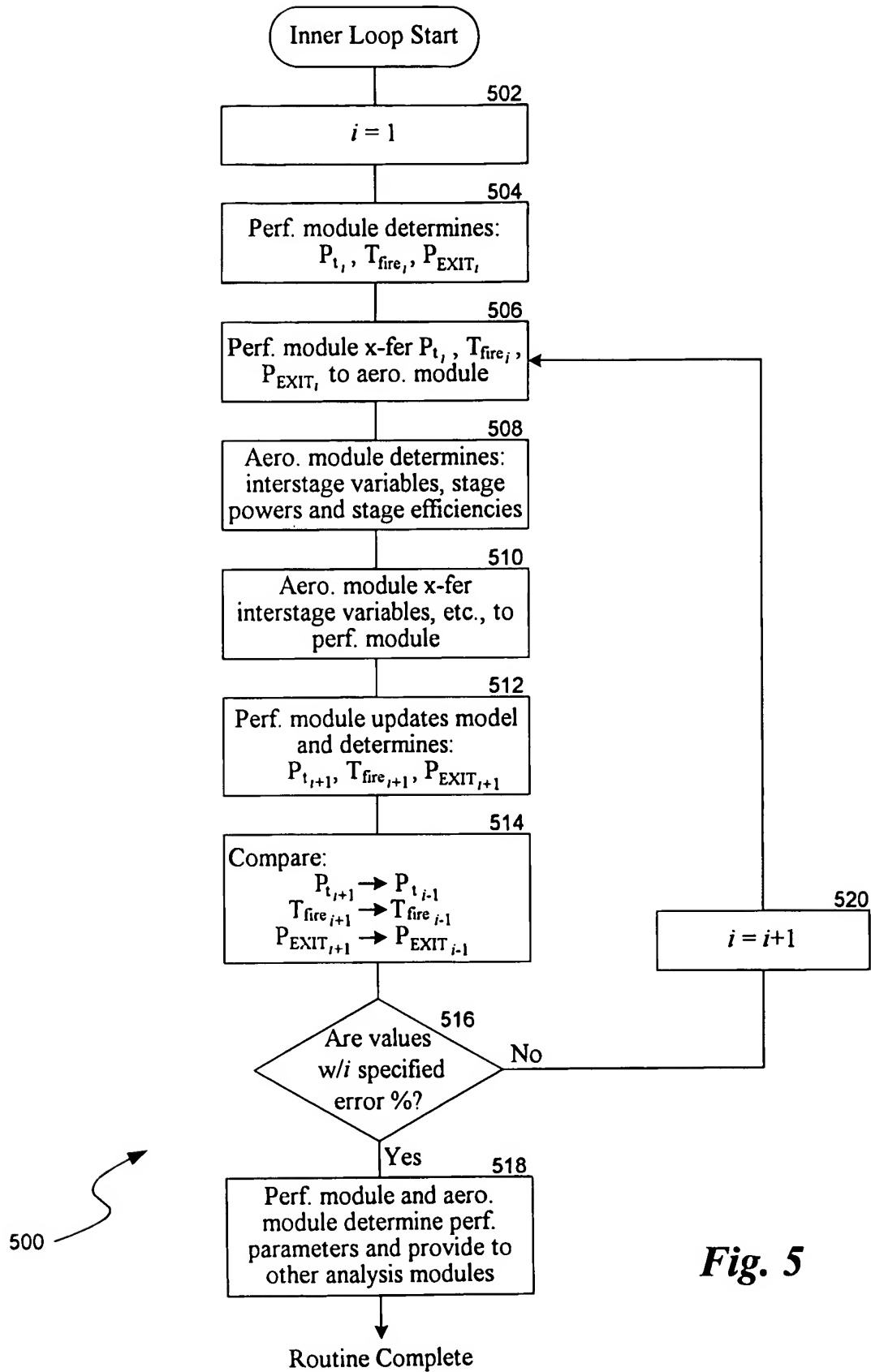


Fig. 5

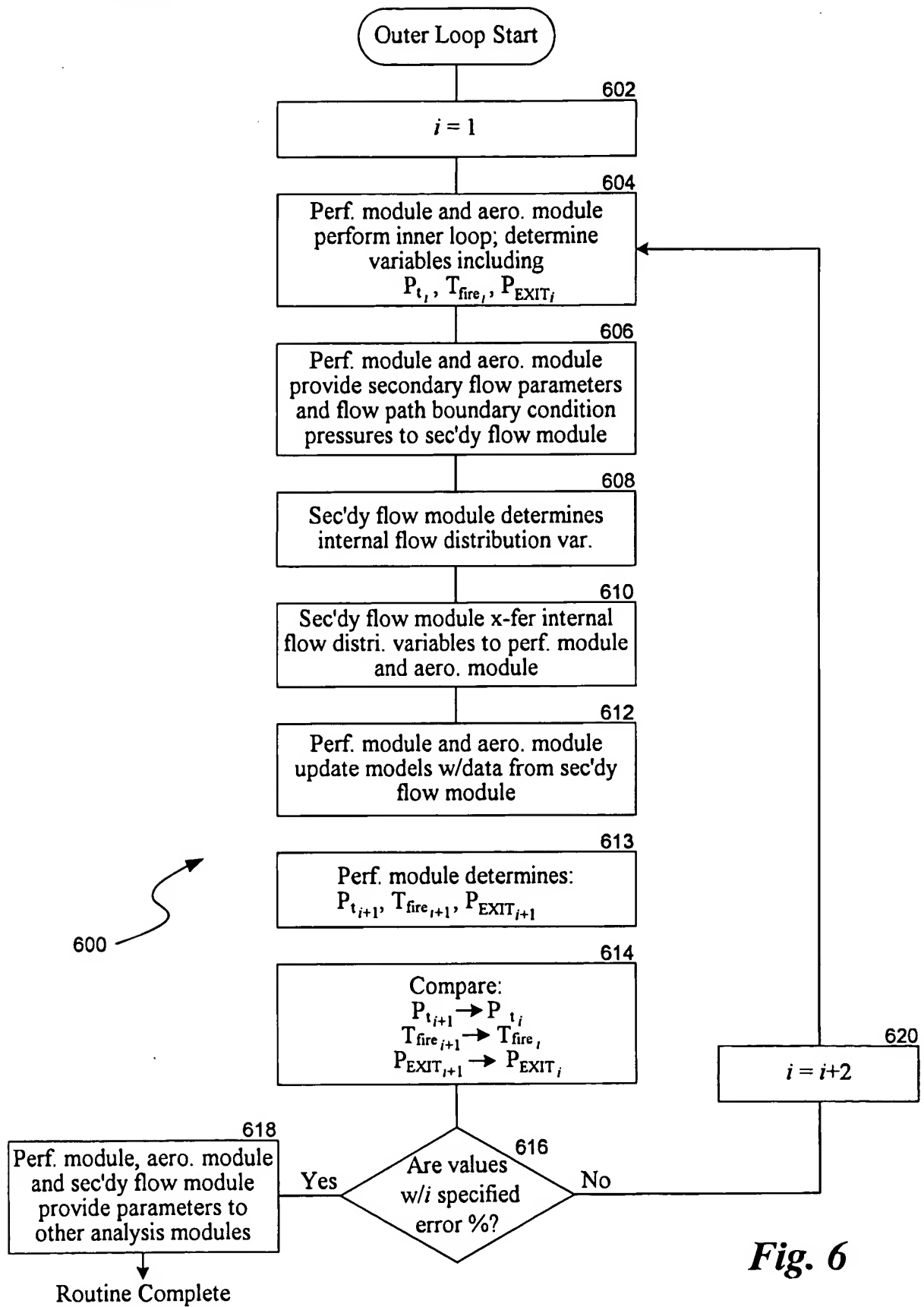


Fig. 6

Fig. 7

GT Simulation Control Panel

Power Plant Configuration: GE STAG 207FA+4 (7241)

Options: Option 1: None, Option 2: None, Option 3: None

Analysis Options:

- ☐ Single Inner Loop (Cycle Deck -> TP3)
- ☐ Iterate Inner Loop (Cycle Deck -> TP3)
- ☐ Single Outer Loop (Flow -> Cycle Deck -> TP3)
- ☒ Iterate Outer Loop (Flow -> Cycle Deck -> TP3)

☒ Record Results in History ☐ Finish Analysis w/ M8B, Model

Iteration Status: Iterate2 Complete

Execute Analysis

Spreadsheet Hide Options:

- ☐ Hide VFT Spreadsheets
- ☐ Hide Cooling Spreadsheets
- ☐ Hide TP3 Spreadsheets
- ☐ Hide Cycle Deck, M8B, Heated Spreadsheets
- ☐ Hide Gettemp Spreadsheets (Under Construction)
- ☐ Hide Lving Spreadsheets (Under Construction)
- ☐ Hide Nec Spreadsheets

VFT Execution Options:

- ☐ Use APP VFT Model
- ☐ Use SIS VFT Model
- ☐ Use S2N VFT Model
- ☐ Use S2N VFT Model
- ☐ Use ROTOR VFT Model

Convergence Control Options:

- ☐ Exclude VFT In Loop

Inner Loop Convergence Criteria:

- Max Allow Err (def=0.15): 0.15%
- Max Allow Sum of Err (def=999.00): 999.00%
- Max Iterations (def=2): 1

Output Summary

Ambient Conditions:

- Temperature: 59 [degF]
- Pressure: 14.7 [psia]
- Relative Humidity: 60 [%]

GT Result Summary (per GT):

- Exhaust Pressure Loss: 15 [in of H2O]
- Fuel Heating Value (LHV): 4,368 [Btu/lbm]
- Fuel Temperature: 290.000 [K]
- GT Output: 8,725 [Btu/KWh]
- GT Heat Rate (LHV): 2750.45 [106 Btu/KWh]
- Heat Consumption (LHV): 1647.25 [psf]
- Exhaust Flow: 1096.7 [degF]
- Exhaust Temperature: 1096.7 [degF]

CC Plant Result Summary:

- ST Output: [kW]
- CC Gross Power Output: [kW]
- CC Net Power Output: [kW]
- CC Auxiliary Power: [kW]
- CC Net Heat Rate (LHV): [Btu/KWh]
- CC Net Efficiency (LHV): [%] LHV

Convergence Summary

Inner Loop Convergence Check:

Variable	Description	MaxOEri(allow < 0.15%) = SumOEri(allow < 999%) =	0.12%	0.57%
EIA_TT_1	Turbine xth Sig Efficiency (t-4)	0.00	0.861	0.861
EIA_TT_2	EIA_TT_1x	0.00	0.866	0.866
EIA_TT_3	EIA_TT_1x	0.00	0.867	0.867
PRATIO_TT_1	Turbine xth Sig Press Ratio (t-4)	0.00	2.059	2.059
PRATIO_TT_2	PRATIO_TT_1x	-0.01	2.031	2.031
PRATIO_TT_3	PRATIO_TT_1x	0.01	2.817	2.817
WNexit	Turbine Sig y nozzle exit flow	-0.02	147.4	147.7
WNexit	WNexit	-0.03	152.2	152.6
WNexit	WNexit	-0.02	152.9	152.3
HP_T1	Horse power of Turbine Sig x	-0.12	276088	276395
HP_T2	HP_T1x	-0.11	26413	264673
HP_T3	HP_T1x	-0.09	254894	255059
HP_Tot	Total Turbine HP	-0.10	797355	798165.9
WE-exhaust	Turbine exhaust flow (after EB dilution)	-0.02	1638.84	1639.2
PTInlet	Total Pressure at Turbine inlet (just u)	-0.02	229.4	229.44
PTInlet	Total Pressure at Turbine exit (before)	-0.02	16.14	16.146
TP3 Run Status	Normal Termination	OK		

Outer Loop Convergence Check:

Variable	Description	MaxOEri(allow < 0.1%) = SumOEri(allow < 999%) =	0.02%	0.26%
Prev CD w2	Compressor air flow [psf]	-0.02	1433.80	1434.14
Prev Wch	Non chargeable flow rate	-0.01	12.075	12.077
Prev Wch CD	Chargeable flow extracted from 18th S	-0.01	2.9660	2.9662
Prev Wch 17th	Chargeable flow extracted from 17th S	-0.01	4.1000	4.1060
Prev Wch 13th	Chargeable flow extracted from 13th S	0.01	2.2971	2.2969
Prev Wch 9th	Chargeable flow extracted from 9th S	0.02	0.1519	0.1519
Prev CD Wch-exhaust	Exhaust flow (after EB dilution, before)	-0.02	1658.84	1659.22
Prev CD WNexit	Turbine Sig 1 nozzle exit flow	-0.02	147.37	147.72
Prev CD WNexit	Turbine Sig 2 nozzle exit flow	-0.02	1582.21	1582.56
Prev CD WNexit	Turbine Sig 3 nozzle exit flow	-0.02	1610.94	1611.33
Prev CD PTInlet	Total Pressure at Turbine inlet (just u)	-0.02	229.40	229.44
Prev CD PTInlet	Total Pressure at Turbine exit (before)	-0.02	16.14	16.15
Prev CD Pcd	Compressor discharge total pressure	-0.02	244.84	244.89
Prev CD Tcd	Compressor discharge total temper	-0.01	785.10	785.20
Prev CD damed HP	Total Horse power of Turbine Sig 1-3	-0.02	717355	717513

Iteration History

Iteration Status: Iterate2 Complete

Loop 2 (Outer Loop: Secondary Flow->CycleDeck->Iteration1)

Time Started (Loop2)	6/18/03 11:05:50
+Time Started (Cooling Analysis)	6/18/03 11:05:50
-Time Completed (Cooling Analysis)	6/18/03 11:06:02
+Time Started (Cycle Deck)	6/18/03 11:06:19
-Time Completed (Cycle Deck)	6/18/03 11:06:48
+Time Started (Iteration 1)	6/18/03 11:07:05
-Time Completed (Iteration 1)	6/18/03 11:13:06
Time Completed (Loop2)	6/18/03 11:13:07
Run Time (Cooling Analysis) [sec]	9FA+e SF Sys VFT
Run Time (Cycle Deck) [sec]	12
Run Time (Iteration 1) [sec]	29
Run Time (Other Calculation) [sec]	361
Run Time (Loop2 Total) [sec]	437
Iteration # (Loop 2)	1

Loop 1 (Inner Loop: TP3->CycleDeck)

Time Started (Loop1)	6/18/03 11:07:06
+Time Started (TP3)	6/18/03 11:07:06
-Time Completed (TP3)	6/18/03 11:12:01
+Time Started (Cycle Deck)	6/18/03 11:12:18
-Time Completed (Cycle Deck)	6/18/03 11:12:47
Time Completed (Loop1)	6/18/03 11:13:06
Run Time (Other Calculation) [sec]	360
Run Time (Loop1 Total) [sec]	360
Iteration # (Loop 1)	1
Iteration # (Loop 2)	1
Iteration # (Loop 1)	1

Variable Name

Variable Name	Convergence (Percent Difference)
SysLoop1.IT3wCD.Dect.EIA.TT.1	0.00
SysLoop1.IT3wCD.Dect.EIA.TT.2	0.00
SysLoop1.IT3wCD.Dect.EIA.TT.3	0.00
SysLoop1.IT3wCD.Dect.PRATIO.TT.1	0.00
SysLoop1.IT3wCD.Dect.PRATIO.TT.2	-0.01
SysLoop1.IT3wCD.Dect.PRATIO.TT.3	0.01
SysLoop1.IT3wCD.Dect.WNexit	-0.02
SysLoop1.IT3wCD.Dect.WNexit	-0.03
SysLoop1.IT3wCD.Dect.WNexit	-0.02
SysLoop1.IT3wCD.Dect.WNexit	-0.12
SysLoop1.IT3wCD.Dect.HP.T1	-0.09
SysLoop1.IT3wCD.Dect.HP.T2	-0.09
SysLoop1.IT3wCD.Dect.HP.T3	-0.10

Perf. Aero Cooling

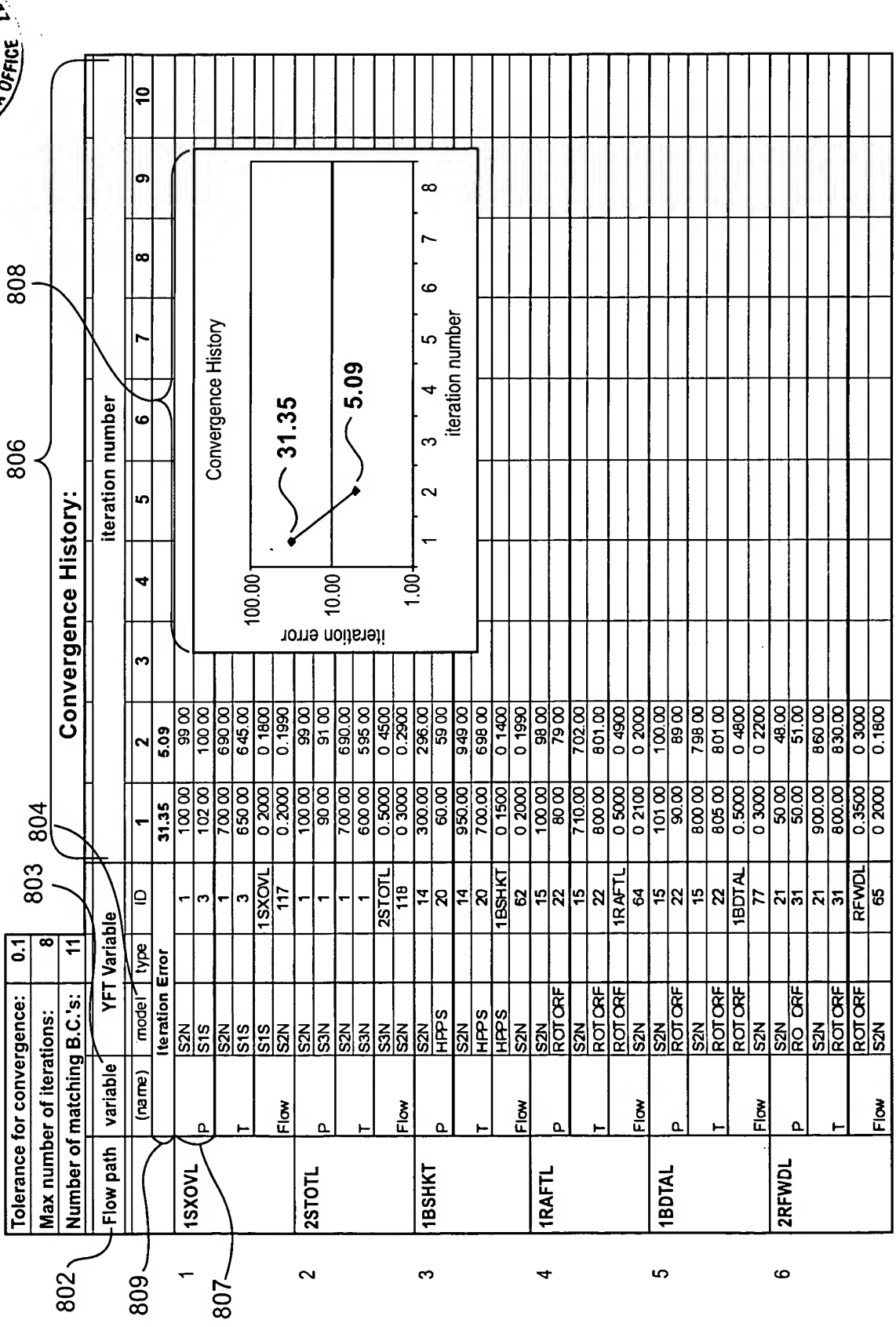


Fig. 8



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TP3 Settings																	
TP3 Areas (linked or unlinked)		UNIT		7FA		6FA		7FA		7FA+		7FA+e					
unlinked		S1N		TFA				S1N									
		S1S		TFA				S1S									
		S1B		TFA				S1B									
		S2N		TFA				S2N									
		S2S		TFA				S2S									
		S2B		TFA				S2B									
		S3N		TFA				S3N									
		S3S		TFA				S3S									
		S3B		TFA				S3B									
Orange values need updating before use!																	
906																	
RPM				Sysin RPM		3600		5254		3600		3600					
Frame Scale Factor				SF		1		1		1		1					
S1N				CLAKV_STG1		30		10		20		30		40		50	
				inlet metal angle		7		4		6		7		10		12	
				throat area		20		16		18		20		22		24	
				TE thickness		20		0		10		20		30		40	
S1S				Orange values need updating before use!		0.4		0.3		0.4		0.4		0.2		0.8	
				tip clearance													
S1B				CLAKB_STG1		200		200		200		200		200		200	
				surface roughness		14		10		12		14		16		18	
				inlet metal angle		100		100		100		100		100		100	
				throat area		0.2		0.2		0.2		0.2		0.2		0.2	
				TE thickness													
S1 Data Match Adjusters																	
				flow coefficient (S1N)		0.6		0.4		0.5		0.6		0.7		0.8	
				flow coefficient (S1B)		1		1		1		1		1		1	
				efficiency (S1N)		0		0		0		0		0		0.2	
				efficiency (S1B)		0		0		0		0		0		0.2	
S2N				CLAKV_STG2		30		10		20		30		40		50	
				inlet metal angle		7		4		6		7		10		12	
				throat area		30		26		28		30		32		34	
				TE thickness		20		0		10		20		30		40	
S2S				Orange values need updating before use!		0.4		0.3		0.4		0.4		0.2		0.8	
				tip clearance													
S2B				CLAKB_STG2		100		100		100		100		100		100	
				surface roughness		14		10		12		14		16		18	
				inlet metal angle		180		180		180		180		180		180	
				throat area		0.2		0.2		0.2		0.2		0.2		0.2	
				TE thickness													

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Fig. 9

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